Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of Parts 2 and 15 of the	)	ET Docket No. 03-122
Commission's Rules to Permit Unlicensed	)	RM-10371
National Information Infrastructure (U-NII)	)	
Devices in the 5 GHz band	)	

Reply Comments of Atheros Communications, Inc.

Atheros Communications, Inc. ("Atheros")[1] respectfully submits these Reply Comments in the above-captioned proceeding for the purpose of addressing several issues raised in the Commission's Notice of Proposed Rulemaking ("*Notice*")[2] and comments thereon.

Specifically, we urge that realistic test procedures be promptly adopted to permit the continued introduction of consumer equipment which utilizes the existing 5.25-5.35 GHz ("U-NII-2") band as well as the new proposed 5.470-5.725 GHz band, but only after an opportunity for interested industry representatives to review and comment on the test procedures. We also

[1] Atheros is a leading developer of networking technologies for secure, high-performance wireless local area networks (WLANs) that operate in the 2.4 and 5 GHz U-NII bands. As the industry innovator and market-share leader in wireless OFDM technology compliant with the IEEE 802.11a, 802.11b & 802.11g specifications, Atheros is driving broadband wireless connections at 55 mb/s plus speeds to provide transparent connections among electronic devices in the office, home and on the road. Atheros' technology is being used by leading wireless equipment manufacturers, including Accton, Actiontec, ALPS Electric, D-Link, Intermec, Netgear, Proxim, SMC Networks, Sony, TDK and UltraDevices.

[2] *Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, *Notice of Proposed Rulemaking*, 18 FCC Rcd 11581 (2003) ("*Notice*").

believe it imperative to retain the full Telecommunication Certification Body ("TCB") coverage currently relied upon by the wireless local area network ("WLAN") industry for most U-NII product types to prevent a costly certification bottleneck in this highly competitive industry.

In addition, we urge that changes to the rules governing the U-NII-2 band be based upon demonstrated need and minimized to lessen disruption to this already-implemented band, and that devices using this band continue to be permitted to offer the *ad hoc* mode but at a reduced power level without a radar detection requirement.

EQUIPMENT AUTHORIZATION TEST PROCEDURES

Test procedures are required that are specific and with enough detail that companies can design consumer equipment with assurance that meeting the requirements will result in prompt equipment authorization under Part 2 of the Commission's Rules.[3] Industry has been actively cooperating with the National Telecommunications and Information Administration ("NTIA") in an *ad hoc* group similar to that which concluded the agreement on radar detection and Dynamic Frequency Selection ("DFS") in January 2003 to draft test procedures to propose to the Commission.[4] A representative of Atheros has actively participated with other industry representatives in this group.

However, it is with some concern that we note that the NTIA has not conveyed back to industry representatives its latest draft of the test procedures document. This draft may or may not include industry feedback on a number of important details which will have a significant

[3] *See* 47 C.F.R. §§ 2.901 *et seq*.

[4] *See Agreement Reached Regarding U.S. Position on 5 GHz Wireless Access Devices,* U.S. Department of Commerce, National Telecommunications & Information Administration, press release dated January 31, 2003.

impact on the ability of our products to demonstrate compliance with the proposed radar detection and DFS rules. Thus, although it would be accurate to say that the NTIA and industry representatives have exchanged ideas, the process of identifying points of substantial disagreement and reaching agreements on those points has not concluded. While we understand that the NTIA has a draft test procedures document, we do not know if industry concerns have been addressed in it, nor has the draft been submitted to the Commission for public comment in this proceeding.

Industry, including Atheros in particular, is committed to working with the NTIA and the Commission to agree to test procedures by consensus, if possible, so that authorizations may be obtained and equipment delivered rapidly to consumers. Especially since DFS and radar detection are new functionalities, we are anxious to cooperate in helping to ensure realistic and effective testing of the required functionalities. While we recognize that ultimately the Commission will finalize test procedures, we sincerely believe that the Commission will be better informed in this new area of DFS and radar detection if it releases a draft test procedures document and obtains industry input before the procedures are finalized unless the draft submitted to it already has achieved consensus. Not making itself aware of the industry viewpoint on this important gate-keeper function would threaten to result in unnecessary delay in equipment design and authorization because of industry's need to be fully familiar with the test procedures as they design 5 GHz U-NII devices and then conduct the tests or have an independent laboratory conduct the tests. Whether test procedures are addressed within or outside this proceeding, the process will only slow if aspects of the procedures are ill-advised or

misunderstood, and delay harms the interests of consumers who otherwise would enjoy the benefits of this new equipment sooner.

It also is imperative that TCBs be entrusted to conduct the tests. As we stated in our Comments, our prior experience in the WLAN industry indicates that market forces will quickly compel manufacturers to offer devices that are in compliance with the new rules soon after the rules are implemented, rather than at the end of a transition period, due to customer demands for guarantees of future compatibility or upgradeability and industry-imposed vendor interoperability.[5] It is imperative to retain the full TCB coverage currently relied upon by the WLAN industry for most U-NII product types to prevent a costly certification bottleneck.

EXISTING "U-NII-2" BAND RULES CHANGES

As a leading provider of 2.4 and 5 GHz WLAN technology to dozens of wireless product manufacturers, Atheros requests that the Commission minimize changes to rules affecting the current "U-NII-2" band (5.250-5.350 GHz) and provide an adequate transition period for devices using this spectrum. This band already is in use and devices are being produced and are in the retail sales chain. In addition, we note that there have been no known interference problems caused to other services by today's devices.

Specifically, as stated in our Comments, we recognize the need for network-controlling devices in this band, like those in the new proposed 5.470-5.725 GHz band, to include radar detection and DFS at the levels agreed by the Government-Industry *ad hoc* group during WRC-03 preparations in January and proposed in the Commission's *Notice*. However, that agreement did not include any uniform spreading requirement nor a Transmit Power Control ("TPC")

[5] *See* Comments of Atheros Communications at 5-7.

requirement. In the *Notice*, the Commission proposed that TPC be adopted only for the 5.470-5.725 GHz band,[6] and we urge that this requirement not be extended unnecessarily to any other U-NII band, including specifically the U-NII-2 band. As of this date there is no need demonstrated in the record for requiring TPC in the U-NII-2 band. No commenter supports extending TPC to this band, and the Commission did not propose to do so.[7]

We also strongly urge the Commission to continue to allow *ad hoc* peer-to-peer wireless connections in the U-NII-2 band. We believe that it is entirely feasible to permit these connections at reduced power levels without the need for DFS capability in the client cards. DFS is not feasible to implement in client cards of the type commonly used in Personal Digital Assistants ("PDAs") and laptops for a variety of reasons, including battery requirements.

In our Comments, Atheros suggested continuing to allow clients to engage in *ad hoc* wireless connections in the two bands under consideration, but at a substantially lower maximum power level to eliminate concerns with interference from devices without DFS. The WiFi Alliance expressed agreement.[8] We suggested a 10 dB reduction in maximum permitted power for *ad hoc* mode, but we recognize that analysis of this issue is complex due in part to considerations such as the location of the device and the number of devices assumed to be operating at any one time, and that therefore an analysis may conclude that a greater reduction is necessary to allay fear of interference under certain conditions. While today this mode is

[6] *See Notice* at ¶ 24 and App. B, proposed rule §15.407(h).

[7] Informal discussions lead us to believe that extending TPC to the U-NII-2 band is under consideration, notwithstanding that the Commission did not propose to do so in the Notice and no commenter suggests such an extension.

[8] *See* Comments of the WiFi Alliance at 9-10.

permitted at full power in this band and there have not been claims of interference, we emphasize that at a minimum a power level commensurate with an ability to communicate at least 30-50 feet within a room is very desirable to retain in wirelessly-equipped laptops and PDAs operating in the 5 GHz U-NII bands.

Finally, we note the Commission's proposal for a one-year transition before ending equipment certification under the current rules and a two-year period before ending sales of products compliant only with the current rules. As a number of commenters have stated, we believe that in concept these transition timeframes are within a reasonable range but the deadlines should run not from the date of publication in the Federal Register, but from the date that test procedures are implemented and used to obtain equipment authorization for products using these bands.[9] The clock should start when the first U-NII device is granted certification by the Commission or a TCB under the new rules.

CONCLUSION

Atheros strongly believes that industry input is essential in the design stage of the testing procedures that will govern approval of equipment to operate in these bands. Market forces in this highly competitive market will compel manufacturers to quickly offer devices with the added functionality enabled by the new spectrum. This marketplace reality makes it imperative that TCBs continue to be authorized to do certification testing, rather than having a certification bottleneck.

[9] *See* Comments of Cisco Systems at 10; Comments of the WiFi Alliance at 13-14; Comments of IEEE 802 at 19; Comments of Agere Systems at 7.

We also urge the Commission to provide reasonable requirements and an adequate transition period to govern the existing 5.25-5.35 GHz band, as well as reasonable but effective requirements for the new 5.470-5.725 GHz band. Doing so will foster the competitive marketplace for U-NII devices and benefit the public by making improved and new functionalities rapidly available to consumers.

Respectfully submitted,

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